

Why Are Millennials Buying Fewer Cars?

Honors Undergraduate Thesis

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By

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Abstract

Millennials are the largest generation in the U.S., hitting 75.3 million in population in 2015 and expected to spend over \$200 billion in 2017. However, they are buying much fewer cars than generations before them, and the number of millennials who purchased a new car dropped 30% from 2007-2014. Previous literature on this subject explains the authors' opinions and speculations as to why millennials are buying fewer cars, but no one has conducted a scientific study to discover millennials' true attitudes on car ownership. The purpose of this study is to understand if millennials are buying fewer cars due to financial reasons, or if they are buying fewer because they truly do not need or want to own one. 259 millennials across the United States responded to a survey regarding their views on car ownership via Amazon's Mechanical Turk, and regression tests and an Anova test were used to analyze the results. Results show that there is no statistically significant relationship between geography or income and car ownership, but there is a positive relationship between being a high school or college graduate and owning a car. Additionally, of the respondents who do not own a car, 42% responded it was due to financial reasons, but 58% said it was because they do not need to own one. This research shows that U.S. car manufacturers can expect to see an increase in millennial car purchases as millennials age, but millennials will still not buy cars in the large amounts previous generations did.

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Introduction

There is a clear trend in car buying amongst people in the U.S. born from 1980-1997, also known as Millennials: they are buying fewer cars. Between 2007 and 2014, the number of Millennials who purchased cars fell by 30% (Weissman, “Millennials Are Still Pretty Cheap”). There is much speculation as to if this decrease is simply a byproduct of difficult economic times, or something more significant: a generational shift. Current literature merely states people’s opinions as to why young people are not buying cars as much as previous generations, and most of the reasoning is simply based on stereotypes of the youngest generation. One hypothesis is that young people are too plugged into technology, and they do not need a car to interact with their friends (Badger, “The Many Reasons”). Instead, all of that interaction and socializing is done digitally, and there is no need to drive and meet face-to-face. Another hypothesis is that Millennials either live or plan to live in urban areas, so they have no need for a car (Badger, “The Many Reasons”). For the most part, automobile manufacturers disagree with both of these hypotheses, and they do not believe this trend is a permanent one. Instead, they reason that young people simply do not have the financial capital in their 20’s to make such a big investment, but they predict that this generation will buy more cars as they get older (Tuttle, “The Great Debate”).

This research is important because millennials’ car buying or lack thereof will affect

both the economy and the environment in big ways. Millennials are expected to spend over \$200 billion in 2017 (Nelson, “Millennials Want to Party”). In other words, they will have more buying power than any other generation in the U.S. In addition, they hit 75.3 million in population 2015, surpassing the Baby Boomers’ population (Fry, “This Year, Millennials”). If the decision to drive less is in fact a permanent, generational change, then the car manufacturing industries, related industries, and economy as a whole will suffer. Annual growth in car manufacturing is expected to be just 2.5% in the next 5 years, less than half of the growth rate of the past 5 years (Ruiz, “Car & Automobile Manufacturing”). If this number continues to decline, car manufacturers will lessen production, resulting in fewer jobs in car industries and supporting industries, such as tires and oil. If car manufacturers can discover the rationale behind the consumers, then these companies can adjust their marketing messages so that they are more effective. For example, if this trend really is a generational shift, advertisers can stop wasting money on marketing to Millennials and target other age groups. If it is based on the financial restraints of young people, then perhaps car manufacturers can create a more cost-focused marketing message.

The permanency of this trend will also effect the environment. According to the Union of Concerned Scientists, transportation is the number one contributor to air pollution (“Car, Trucks, & Air Pollution”). In 2013, transportation contributed to half of the carbon monoxide and nitrogen oxide in the air, and a quarter of hydrocarbons emissions (“Car, Trucks, & Air Pollution”). These pollutants cause pneumonia, influenza, asthma, respiratory problems, lung problems, and cancer (“Car, Trucks, & Air Pollution”). If Millennials continue the pattern of driving less and buying fewer cars, the air quality and health in America could be greatly improved. The implications of this are that the government can use

less tax dollars on green incentives, healthcare costs could go down, and businesses may be able to increase production if emissions standards are relaxed which could result in more jobs.

Millennials' car purchasing patterns will also affect how the United States invests in transportation. Americans are already driving less and using public transportation more, and with millennials making up the highest population in the U.S., they could intensify this trend even more ("New Study Reveals Driving on the Decline"). Should the government provide subsidies to encourage car buying, just like it does for home purchasing? Or should the government invest in other forms of transportation, like biking programs and mass transportation? Millennials are the ones who actually have the most at stake from transportation investment decisions because they are the ones who feel the lasting effects of the decisions. Therefore, it is important to truly understand their preferences and predict their future behaviors.

Literature Reviewed

Much of the current literature on millennials and car ownership is contradictory. There is much debate as to if millennials are actually buying fewer cars, and even if they are, no one agrees as to why. An article from *The Atlantic* in 2012 states millennials' share of new car purchases is down to 18%, compared to 35% in 1985 (Thompson, Weissman, "The Cheapest Generation"). 3 years later, a J.D. Power study reveals that millennials bought 4 million cars and trucks in 2015, the second highest after Baby-Boomers (Durban, "The Millennials Are Finally Arriving"). It also states that millennials' share of the car market increased 10% and is now at 28%. The study concludes that the decrease in millennials' car purchases was due to the 2008 recession and that car manufacturers could expect to see millennials' car purchases increase to the same rates of young people of previous generations. However, a *Slate* article published in 2015 refutes the findings of the J.D. Power study. It states that the J.D. Power study included some very old millennials, and when they are taken out, car buying has only increased 2%, not the 10% that J.D. Power claims (Weissman, "Millennials Are Still Pretty Cheap"). According to R. L. Polk & Co, millennials' car purchases actually decreased from 2010 to 2015 (Weissman, "Millennials Are Still Pretty Cheap"). The discrepancy in the data stems from the fact that J.D. Power receives information from car dealership, while the R. L. Polk gets its data from car

registrations. Clearly, there is still a large disagreement as to the rate and intensity of the decrease of millennial car purchases.

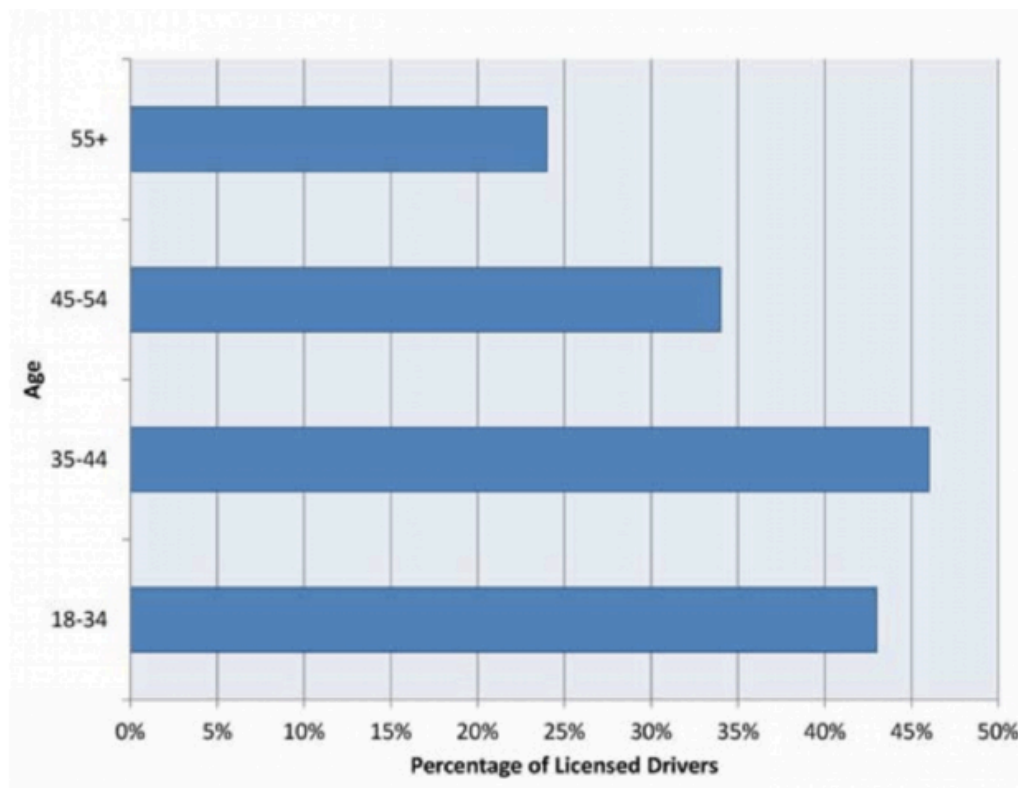
Even if there was a consensus that millennials are buying fewer cars, no one agrees as to the reason why. Car manufacturers are hopeful that millennials simply do not have the income to afford cars, and that once they age and have higher-paying cars, they will purchase vehicles at the same rates their parents did (Tuttle, “The Great Debate”). The J.D. Power study supports this belief, and states that millennials are putting off a lot more than just car purchases- marriage, children, and a home. They have not lost interest in all of these things; they simply cannot afford them right now (Taylor, “Millennial Malarkey”). Car manufacturers obviously believe this, as they spend millions marketing to millennials each year (Tuttle, “The Great Debate”). Others argue that millennials are putting off car purchases not because they do not want to drive, but because they hate the car shopping and purchasing process. A Deloitte Study found that “more than half of younger buyer would prefer to purchase a vehicle without negotiating, and 44% would pay for a dealer to pick up their cars for repairs and drop off a loaner” (Taylor, “Millennial Malarkey”).

Those who oppose the low-income argument believe that millennials can afford cars; they just do not want or need them. They cite the fact the number of teenagers with a driver’s license fell by 28% between 1998 and 2008 (“Seeing the Back of a Car”). Additionally, only 79% of Americans ages 20-24 had a drivers license in 2011, compared to 92% of 20-24 year-olds in 1983 (Riley, “Why Are Fewer Young People”). A University of Michigan study found teenagers said they were too busy to get a license and were find depending on others for transportation- the “mooch” factor (Riley, “Why Are Fewer Young People”). A *Time Magazine* article states that young people do not have the same passion for driving as

previous generations (Tuttle, “The Great Debate”). They see it as a hassle and a chore, rather than previous generations, who saw driving as the ultimate independence and cars as the ultimate vessel of self-expression (Chozik, “As Young Lose Interest in Cars”).

In addition to the argument that young people do not want to drive, there is another argument that young people simply do not *need* to drive. One of the reasons people argue of the little need to drive is that millennials do not need to drive and see one another face-to-face to maintain their relationships. Technology and smart phones allow for young people connected virtually instead, and millennials would rather spend their money on the latest technology than on a car. (Badger, “The Many Reasons”).

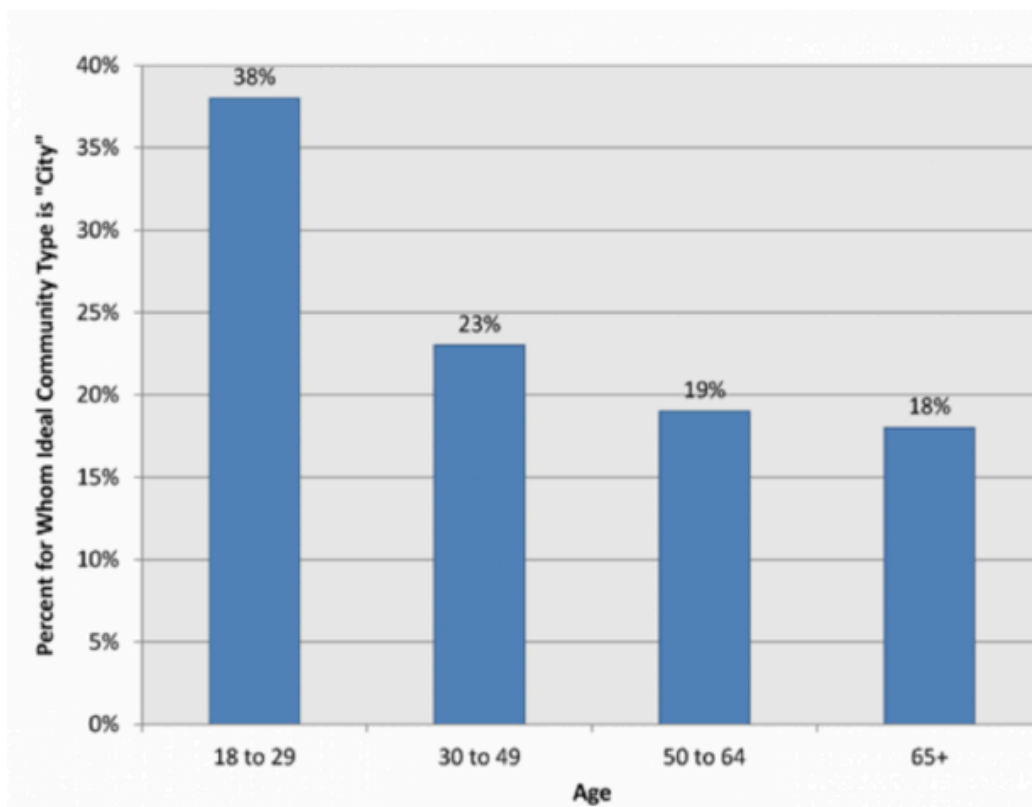
Figure 1: Percentage of Licensed Drivers Reporting that they “Sometimes Choose to Spend Time with Friends Online Instead of Driving to See Them” (Zipcar Survey)



U.S. PIRG, [Zipcar](#)

A final reason as to why millennials do not need cars as much is that they live in big cities and “walkable suburbs” that provide alternate forms of transportation (Thompson, Weissman, “The Cheapest Generation”). They may not need to own a car because they usually will have no need to drive one; instead, they only need access to a car, which substitutes like Uber, Car2Go, and Zipcar provide. Large cities are also much more compact, allowing millennials to walk, bike, or use mass transit to get to wherever they need to go.

Figure 2: Percentage of People Preferring to Live in a City, by Age
(Data from Pew Research Center)



U.S. PIRG, Pew Research Center

Research Methods

The results of this study come from a 25 question-survey; however, in-depth interviews and focus groups were conducted first in order to know which survey questions should be asked. 8 millennials, who range from undergraduate, to graduate, to working full-time and live in the Midwestern or Southeastern areas of the United States were asked 9 open-ended questions in order to understand their thoughts, attitudes, and motivations behind car-ownership. The interviews were conducted in-person and over the phone and lasted about 20 minutes. The goal of the interviews was to see why or what not the interviewee owned a car, as well as if they planned to buy a car in the future. The questions were left open-ended so that the interviewee had freedom to say whatever came to mind of the subject. See Appendix A for a complete list of interview questions. Common themes and motivations that arose during the in-depth interviews were the basis for questions for the focus group questions.

2 focus groups of 4 participants each were held. The focus group was composed of undergraduates of a variety of different majors at The Ohio State University. The focus group allowed participants to build off of one another's responses as well as feel more comfortable in a group setting. Focus groups were longer, lasting approximately one hour each, and participants were asked more specific questions about how often they drive, what other modes of transportation they use, as well as what affects their decision to purchase a vehicle.

The survey questions were then crafted and were based on the discussions from the in-depth interviews and focus groups. The survey was approximately 25 questions (more or less depending on certain answer choices chosen by the respondent). The survey was conducted using OSU Qualtrics and distributed using Amazon Mechanical Turk. Amazon Mechanical Turk is an online marketplace that allows a “requester” to post a survey and pay a “worker” to take that survey. The survey had 259 respondents who were all between the ages of 18 and 35. Survey questions were much more straightforward, with the goal of finding out if the respondent owned a car, and why or why not he/she chose to own or not own a car as well as future plans for car purchases. The survey also asked questions about the respondent’s geographical location, level of income and education, and access to public transportation to see if those factors had an effect on car ownership or future plans to purchase a vehicle.

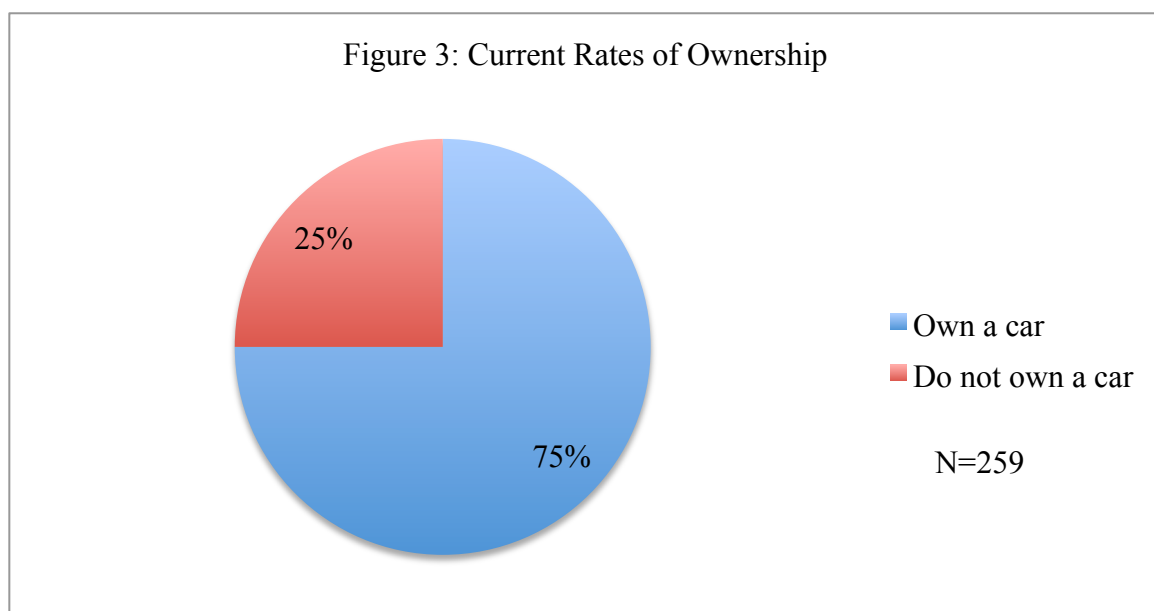
Data Analysis

Results were analyzed within OSU Qualtrics as well as on SPSS Statistics. OSU Qualtrics was used to determine the demographics of the respondents, including their income, geographic location, level of education, gender, and age. OSU Qualtrics also analyzed the number of respondents who own cars, why a respondent chose to own or not own a car, the number of respondents who plan on buying cars within the next five years and why, as well as the types of transportation respondents used the most.

SPSS Statistics was used to determine any relationships between car ownership and income, geographic location, and being in school. The three null hypotheses tested were as follows: H_1 : The more income a respondent makes, the more likely he or she is to own a car; H_2 : If a respondent lives in an urban area, he or she is less likely to own a car; H_3 : If a respondent is in school, he or she is less likely to own a car. Car ownership was the dependent variable, while income, geographic location, and being in school were the independent variables. Logistic regression tests were ran for geography and school, with geographic location being identified as urban versus suburban and rural and education being classified as being in school (high school or college) versus not in school. A One-way Anova Test was run for household income, and the different ranges of incomes were assigned numbers from 1-6.

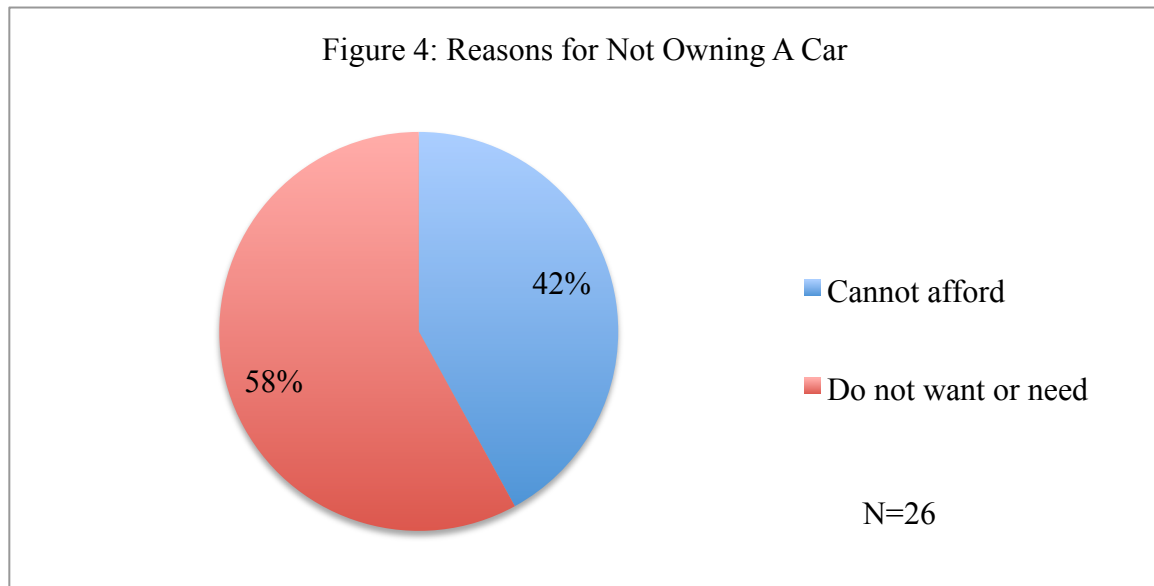
Results

75% of the 259 respondents own a car that they bought themselves. 25% of respondents either do not own a car, or they own a car but someone else bought it for them. Although there is no data that directly compares the rate of ownership of other generations, 95% of all American households own one or more cars (Chase, “Does Everyone in America Own a Car?”). Clearly, millennials have a long way to go to catch up to ownership rates of the rest of America.

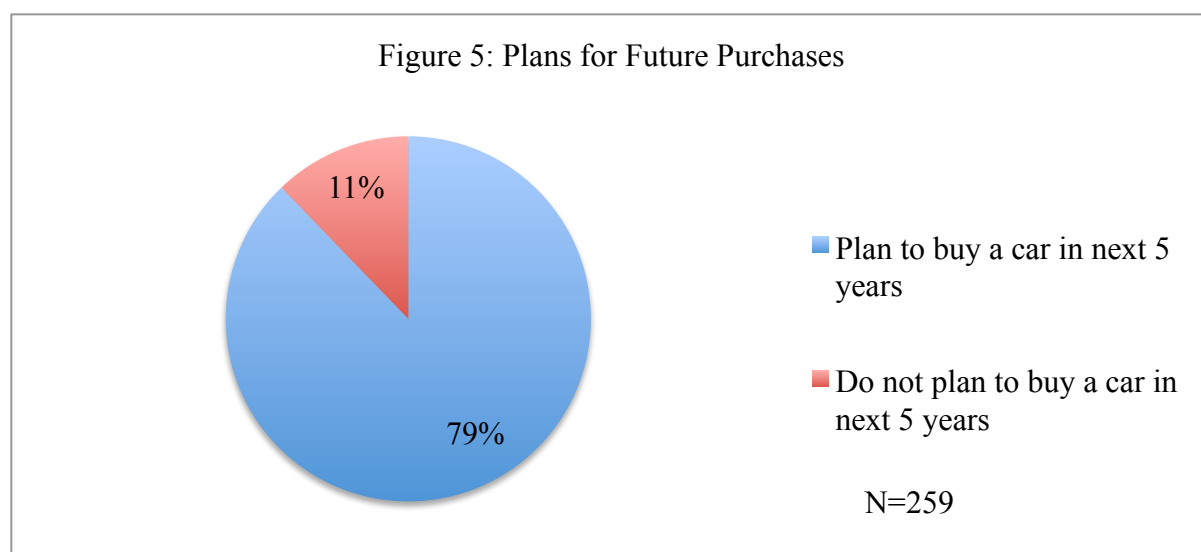


The 26 respondents who responded to “Reasons for Not Owning a Car” do not have access to a car at all, meaning they do not own a car they bought themselves and they do not own a car that someone else bought for them. Because this sample is so small, it is difficult to draw absolute conclusions from it. However, it is notable that for a majority of respondents,

affordability was not the deciding factor in deciding to own a car. Rather, their choice to own cars was based off of a lack of want or need.

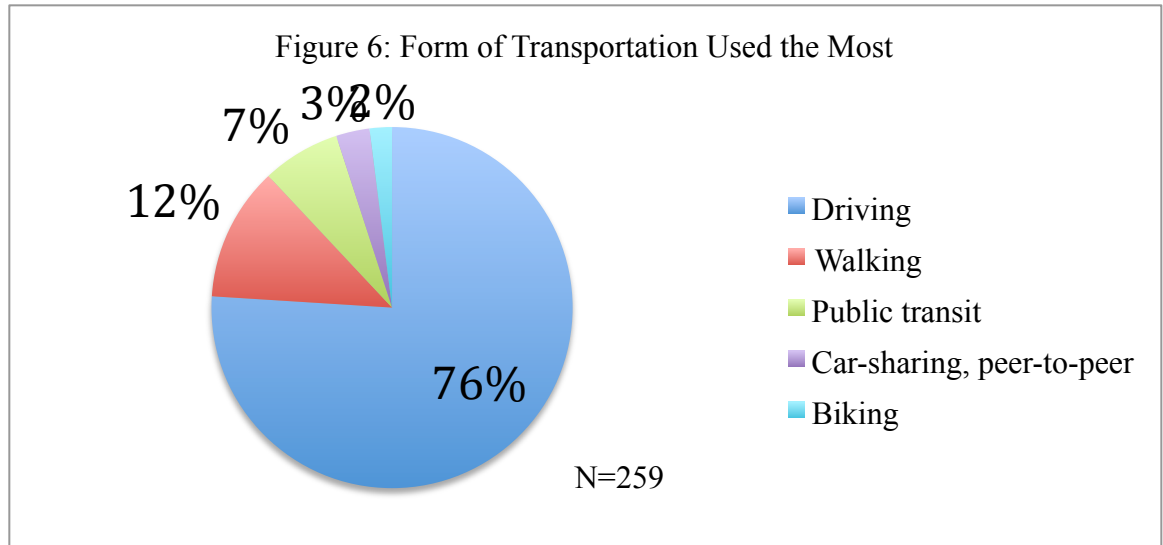


All 259 respondents were asked the question if they planned to buy a car within the next 5 years, and an overwhelming majority, 79%, said yes. These responses indicate that car manufacturers can expect to see an increase in car purchases in the near future, since only 75% of respondents currently own cars. Car manufactures are already seeing this increase materialize, as millennials' car purchases increased by 2% in 2015 (Weissmann, "Millennials Are Still Pretty Cheap").



However, results from this study indicate there is still a subset of millennials that will continue to delay car purchasing. Of the 64 respondents who responded that they do not own a car that they bought themselves, 33% said they do not plan on buying a car in the next 5 years. Therefore, if a millennial does not own a car now, he or she is three times as likely to not purchase one in the next five years as someone who already owns a car. This result shows that a subset of millennials is not interested in buying cars now or in the future.

When respondents were asked to rank the forms of transportation they use from the most to the least, 75% of respondents answered that driving was their number one form of transportation they used. Walking and public transit were the second and third most commonly used forms of transportation. Although there is no data available that directly compares these results with those of other generations, miles driven per capita for all Americans has decreased in 46 U.S. states (“New Study Reveals”). This decrease has been in the double digits for 19 of those states (“New Study Reveals”). Along with this decrease in driving has come a 4% increase in the use of public transportation (“U.S. Transit Use Up, Driving Down in 2008”).



Out of all three null hypotheses, only H_3 could be rejected. There is a statistically significant relationship between being in school and car ownership. If a respondent is in high school or college, he or she is less likely to own a car. Null hypothesis H_1 and H_2 could not be rejected. There is no statistically significant relationship between income or geography and car ownership. That being said, the respondents' income data was skewed toward lower income levels, so that may have had an effect on the statistical test.

Figure 7: Income of Respondents








Table 1: Null Hypotheses

Null Hypothesis	Reject/Do Not Reject	Constant	Significance Level
There is no statistically significant relationship between income and car ownership	Do not reject	.088	.464
There is no statistically significant relationship between geographic location and car ownership	Do not reject	-.221	.469
There is no statistically significant relationship between being in high school or college and car ownership	Reject	-.698	.024








When respondents were asked to select all of the reasons they owned a car, the most commonly selected answer was one of need- that the places they needed to go were not within walking or biking distance. Interestingly enough, the least selected answer was that the respondent drove for fun and enjoyed driving. This response reflects much of the current literature that suggests millennials do not enjoy driving like older generations do.

Table 2: Reasons for Owning A Car

#	Answer		Response	% ▲
1	The places I need to get to are not within walking or biking distance.		170	79%
4	I like the independence it offers		122	56%
2	Public transportation is either nonexistent or not very good.		92	43%
3	It is more convenient than using a taxi, Uber, or car-sharing service		88	41%
5	For fun/I enjoy driving		71	33%




When respondents who said they did not plan on buying a car in the next 5 years were asked to select all of the reasons why not, the second most selected answer, besides that they believed their current car would last them beyond five years, was that they thought they may live in a city where everything is within walking or biking distance. It is interesting that the most commonly selected answer for owning a car is just the inverse of the most commonly selected answer for not planning on buying a car. These results suggest that although driving is still the most commonly used form of transportation, millennials would prefer to walk or bike.

Table 3: Reasons for Not Purchasing A Car in the Next 5 Years

#	Answer		Response	% ^
7	I believe my current car will last me beyond 5 years		36	68%
1	I may live in a city where everything is within walking or biking distance		15	28%
6	I may work from home		13	25%
2	I may live somewhere with good public transportation		11	21%
5	I might not need a car to feel connected socially. I rely on the internet instead.		4	8%
4	I may rely on car sharing and peer-driving services like Uber or Lyft		2	4%
3	I may rely on friends		2	4%

When respondents were asked the primary way they viewed a car, the majority responded that they viewed it only as a way to get from point A to point B. Only 10% responded that they primarily viewed a car as a way to express themselves, which is drastically different than Baby Boomer's views of cars. Again, this mirrors current literature, which describes cars as a major point of Baby Boomer's youth culture. To Baby Boomers, cars meant freedom and independence (Chozik, "As Young Lose Interest in Cars"). In this sample, cars did not mean independence to a majority of respondents.

Table 4: Primary Way of Viewing a Car

#	Answer		Response	%
1	Simply a way to get from point A to point B		129	52%
2	A vessel to express myself		24	10%
3	Provides me Independence		95	38%
	Total		248	100%

Implications

Due to the fact that 79% of respondents plan on buying a car in the next 5 years, car manufacturers can expect to see an increase in car purchases in the next few years. However, it is unlikely that millennial rates of car ownership will ever match ownership rates of young people in previous generations because millennials would have to double their rates of ownership to match that of Baby Boomers or Generation X. Additionally, because only 67% of respondents who do not own cars plan on buying a car in the next 5 years, it is clear that a subset of millennials is truly uninterested in own a vehicle. To capture dollars from this subset, car manufacturers should look into investing in alternate forms of transportation that these people are using, such as biking, car-sharing, or peer-to-peer driving. Car manufacturers should continue to advertise to millennials in urban, rural, and suburban areas, as they all purchase vehicles at the same rate. It is imperative for car manufacturers to increase their presence on college campus since students in college are statistically significantly less likely to own a car. With an estimated 20.2 million Americans in college, this is a huge segment of the market car manufacturers are missing out on (“Back to School Statistics”). If car manufacturers could establish a presence on college campuses, whether it be through car-sharing or even self-driving cars in the future, they create a relationship between college students and their brand. This gives car manufacturers an advantage when millennials graduate and start buying more cars, as they may be more likely to purchase a

vehicle with a brand they already have experience with (Rindfleisch, Iman, “Explaining the Familiarity-Liking Relationship”).

These trends do not just affect car manufactures; they affect states’ departments of transportation as well. If driving is on the decline but mass transit is on the rise, states should be looking into investing in public transportation as opposed to more roads and highways. Additionally, because millennials suggested they prefer walking and biking to driving, departments of transportation should look into bike paths and sidewalks.

Lastly, the overall decrease of driving and car purchasing should benefit the environment. Since driving is decreasing in 46 states, air quality should increase due to less air pollution from car engines. Also, because millennials will probably never own cars in the same amounts as their parents, overall car production may go down, resulting in less pollution and waste from manufacturing facilities.

Future Research

There are several unanswered questions within this study that lend themselves to further research and investigation. Further research could include an additional survey posted on Amazon Mechanical Turk that is restricted to only millennials who do not own cars. Because the sample size of this group was so small in the survey in this study, 26 respondents, it would be interesting to poll a larger number of respondents, at least 250. The survey would ask these respondents even more in-depth questions, such as specific reasons why they do not own a car, why they plan or do not plan on buying one in the future, if they have ever owned a car, their opinions on driving and car ownership in general, other forms of transportation they use, as well as where they live and how far they live from work.

Additionally, because the incomes of this sample were very skewed toward the lower end of the spectrum, this may have biased the results of the Anova test analyzing a relationship between income and car ownership. If another sample of more diverse incomes could be polled, it could provide a more accurate result of a relationship between income and car ownership.

It would also be interesting to conduct this same survey on members of Generation X, the Baby Boomers, the Greatest Generation, and the Silent Generation. Many of the results in this study did not have comparable results from other generations available in the current literature, so a direct comparison of results of millennials to Americans of other generations would allow for even more conclusions about millennials.

Lastly, there are some additional questions that could be asked on the current survey. One question could ask respondents questions about their commute to work or school and if that played a part in their decision to own cars. It would also be interesting to do a further investigation into the differences and similarities within and between the groups of millennials who have a car but did not buy it themselves versus millennials who have no car at all.

References

- “Back To School Statistics.” *National Center for Education Statistics*. Institute of Education Sciences, 2015. Web. 1 Apr. 2016.
- Badger, Emily. “The Many Reasons Millennials Are Shunning Cars.” *The Washington Post*. The Washington Post, 2014. Web. 24 Mar. 2015.
- “Cars, Trucks, and Air Pollution.” *Union of Concerned Scientists*. Union of Concerned Scientists, 2014. Web. 24 Mar. 2015.
- Chase, Robin. “Does Everyone in America Own a Car?” U.S. Department of State, Bureau of International Information Programs, n.d. Web. 30 Mar. 2016.
- Chozik, Amy. “As Young Lose Interest in Cars, GM Turns to MTV for Help.” *The New York Times*. The New York Times Company, 2012. Web. 30 Mar. 2016.
- Durban, Dee-Ann. “Millennials Are Finally Arriving in the Car Market.” *The Dispatch*. The Commercial Dispatch Publishing Company, 2016. Web. 10 Mar. 2016.
- Fry, Richard. “This Year, Millennials Will Overtake Baby Boomers.” *Pew Research Center*. Pew Research Center, 2015. Web. 25 Mar. 2015.
- Nelson, Erin Mulligan. “Millennials Want to Party With Your Brand But On Their Own Terms.” *Ad Age*. Advertising Age, 2012. Web. 25 Mar. 2015.
- “New Study Reveals Driving on the Decline in 46 States.” United States Public Interest Research Group, 2013. Web. 1 Apr. 2016.
- Riley, Naomi Shaefer. “Why Are Fewer Young People Getting Driver’s Licenses?” *New York Post*. NYP Holdings, Inc., 2016. Web. 1 April 2016.

- Rindfleisch, Aric and J. Iman. "Explaining the Familiarity-Liking Relationship: Mere Exposure, Information Availability, or Social Desirability?" *Marketing Letters*: Volume 9, Issue 1, pp 5-19, 1998. Web. 1 Apr. 2016.
- Ruiz, Brandon. "Car & Automobile Manufacturing in the US." *IBISWorld* (2015): n. pag. 28 Mar. 2015.
- "Seeing the Back of a Car." *The Economist*. The Economist Newspaper Limited, 2012. Web. 1 April 2016.
- Taylor III, Alex. "Millennial Malarkey, The Myth That A Generation Hates Cars." *Fortune*. Fortune Magazine, 2014. Web. 24 Mar. 2015.
- Thompson, Derek and Jordan Weissman. "The Cheapest Generation." *The Atlantic*. The Atlantic Monthly Group, 2012. Web. 1 March 2016.
- Tuttle, Brad. "The Great Debate: Do Millennials Really Want Cars, or Not?" *Time*. Time Inc., 2013. Web. 28 Mar. 2015.
- "U.S. Transit Use Up, Driving Down in 2008." US Department of Energy, EERE News Archives and Events, 2009. Web. 1 April 2016.
- Weissmann, Jordan. "Millennials Are Still Pretty Cheap." *Slate*. The Slate Group LLC, 2015. Web. 3 Mar. 2016.

Appendix A: In-depth Interview Questions

1. Do you currently own a car?
2. Why or why not?
 - 2a. Is it a financial reason?
 - 2b. Do you have the need to drive?
 - 2c. If you drive but don't own a car, what do you use?
3. Do you plan on buying a car in the next 10 years?
4. Why or why not?
5. What could change in the next 10 years that would make you change your answer?
6. Do most of your friends have cars?
7. Do you think your friends will be buying cars in the next 10 years?
8. Why or why not?
9. If you do not own a car but use your parent's car, do you feel this hinders your independence? Is it important to you to have your own car that you bought yourself?

Appendix B: Focus Group Questions

1. Do you currently own a car?
2. Why or why not?
 - 2a. Is it a financial reason?
 - 2b. Do you have the need to drive?
 - 2c. If you drive but don't own a car, what do you use?
3. Do you plan on buying a car in the next 10 years?
4. Why or why not?
5. What could change in the next 10 years that would make you change your answer?
6. Do most of your friends have cars?
7. Do you think your friends will be buying cars in the next 10 years?
8. Why or why not?
9. If you do not own a car but use your parent's car, do you feel this hinders your independence? Is it important to you to have your own car that you bought yourself?

Appendix C: Survey Questions

Q1 Thank you for participating. Some workers will not be qualified to take this survey. To ensure you are eligible, please answer the screening question below. What is your age? Please enter as a numerical value.

If What is your age? Please en... Is Greater Than 35, Then Skip To End of Survey
If What is your age? Please en... Is Less Than 18, Then Skip To End of Survey

Q2 Which of the following best describes you?

- ☐ I currently own and drive a car that I purchased myself (1)
- ☐ I currently drive a car that was purchased by someone else and given to me (2)
- ☐ I currently drive a car that was purchased by someone else and is on loan to me (3)
- ☐ I borrow a car when I need to drive somewhere (4)
- ☐ I use a car-sharing service (e.g. Cars2Go, ZipCar, GetAround, etc) when I need to drive somewhere (5)
- ☐ I rely on alternate forms of transportation (e.g. Train, Bus, Bike) for the majority of my transportation needs (6)
- ☐ I do not have a license to drive (7)

Answer If Which of the following best describes you? I currently drive a car that was purchased by someone else and given to me Is Selected Or Which of the following best describes you? I currently drive a car that was purchased by someone else and is on loan to me Is Selected

Q3 Would you agree or disagree that having someone else purchase your car, or loan you a car hinders your independence?

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neither Agree nor Disagree (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Answer If Which of the following best describes you? I currently own and drive a car that I purchases myself Is Selected Or Which of the following best describes you? I currently drive a car that was purchased by someone else and given to me Is Selected Or Which of the following best describes you? I currently drive a car that was purchased by someone else and is on loan to me Is Selected

Q4 How much of the full cost of ownership, including insurance, maintenance, and parking of the car you currently drive are you personally responsible for paying?

- ☐ None (1)
- ☐ Little (2)
- ☐ Some (3)
- ☐ A Lot (4)
- ☐ All (5)

Answer If Which of the following best describes you? I currently own and drive a car that I purchases myself Is Selected Or Which of the following best describes you? I currently drive a car that was purchased by someone else and given to me Is Selected Or Which of the following best describes you? I currently drive a car that was purchased by someone else and is on loan to me Is Selected

Q5 Why do you have a car? Select all that apply.

- ☐ The places I need to get to are not within walking or biking distance. (1)
- ☐ Public transportation is either nonexistent or not very good. (2)
- ☐ It is more convenient than using a taxi, Uber, or car-sharing service (3)
- ☐ I like the independence it offers (4)
- ☐ For fun/I enjoy driving (5)

Answer If Which of the following best describes you? I borrow a car when I need to drive somewhere Is Selected Or Which of the following best describes you? I use a car-sharing service (e.g Cars2Go, ZipCar, GetAround, etc) when I need to drive somewhere Is Selected Or Which of the following best describes you? I rely on alternate forms of transportation (e.g. Train, Bus, Bike) for the majority of my transportation needs Is Selected

Q6 Which of the following best describes why do you not have a car?

- ☐ I cannot afford one (1)
- ☐ It is inconvenient to have a car (5)
- ☐ I do not need one to get where I need to go (2)
- ☐ I do not want to own a car (3)
- ☐ Other. Please explain reason in the box. (4) _____

Answer If Why do you not have a car? I cannot afford one Is Selected

Q7 Why can you not afford to buy a car? Select all that apply.

- ☐ I am currently in school and do not have a full-time job. (1)
- ☐ My job does not provide me with enough income to buy a car (2)
- ☐ I have a good job but have other financial obligations (e.g. student loans, credit card debt, medical or family expenses) (3)

Q8 How important is it to you to have your own car that you bought yourself?

- ☐ Extremely Important (1)
- ☐ Very Important (2)
- ☐ Neither Important nor Unimportant (3)
- ☐ Very Unimportant (4)
- ☐ Not at all Important (5)

Q9 Do you plan on buying a car, or replacing your car in the next 5 years?

- ☐ Yes (1)
- ☐ No (2)

Answer If Do you plan on buying a car before you turn 36? Yes Is Selected

Q10 Why do you plan on buying a car in the next 5 years? Select all that apply.

- ☐ I will have graduated school/have a full-time job and will have the income to buy a car (1)
- ☐ I may not be able to get everywhere by walking or biking (2)
- ☐ I may live somewhere with poor public transportation (3)
- ☐ I may live somewhere where a car is more convenient than a taxi, car sharing service, or Uber (4)
- ☐ For fun/I enjoy driving (5)
- ☐ The car I currently use will stop working (6)
- ☐ I expect to have a family by that time and may need a car for family logistics (7)

Answer If Do you plan on buying a car before you turn 36? No Is Selected

Q11 Why do you not plan on buying a car in the next 5 years? Select all that apply.

- ☐ I may live in a city where everything is within walking or biking distance (1)
- ☐ I may live somewhere with good public transportation (2)
- ☐ I may rely on friends (3)
- ☐ I may rely on car sharing and peer-driving services like Uber or Lyft (4)
- ☐ I might not need a car to feel connected socially. I rely on the internet instead. (5)
- ☐ I may work from home (6)
- ☐ I believe my current car will last me beyond 5 years (7)

Q12 Which of the following best describes how you view a owning a car?

- ☐ Simply a way to get from point A to point B (1)
- ☐ A vessel to express myself (2)
- ☐ Provides me independence (3)

Q13 Do you think most of your friends will own a car in the next 5 years? Select all that apply.

- ☐ Yes because they will have an increase in disposable income and want to upgrade their cars (1)
- ☐ Yes because their current cars will stop working (2)
- ☐ Yes because they will need larger vehicles to accommodate a family (3)
- ☐ Yes because they will move out of cities and into suburbs and may not be able to rely on alternate modes of transportation (4)
- ☐ No because they will hold onto their current car (5)
- ☐ No because they will not be able to afford a car (6)
- ☐ No because they will rely on other modes of transportation (public transportation, car sharing, walking, etc.) (7)

Q14 How much would you be willing to spend on a car within the next 5 years?

- ☐ Under \$5,000 (1)
- ☐ \$5,000-\$10,000 (2)
- ☐ \$10,001-\$25,000 (3)
- ☐ \$25,001-\$50,000 (4)
- ☐ Above \$50,000 (5)

Q15 How important is your current financial situation in considering whether to buy a car within the next 12 months?

- ☐ Extremely Important (1)
- ☐ Very Important (2)
- ☐ Neither Important nor Unimportant (3)
- ☐ Very Unimportant (4)
- ☐ Not at all Important (5)

Q16 How important is your geographic location in considering whether to buy a car within the next 12 months?

- ☐ Extremely Important (1)
- ☐ Very Important (2)
- ☐ Neither Important nor Unimportant (3)
- ☐ Very Unimportant (4)
- ☐ Not at all Important (5)

Q17 Rank the following modes of transportation in order of the ones you use the most (1) to the ones you use the least (5)

- _____ Walking (1)
- _____ Biking (2)
- _____ Driving (3)
- _____ Public transportation (4)
- _____ Car sharing, peer-to-peer driving (such as Uber), taxis (5)

Q18 What year were you born?

- ☐ 1980 (1)
- ☐ 1981 (2)
- ☐ 1982 (3)
- ☐ 1983 (4)
- ☐ 1984 (5)
- ☐ 1985 (6)
- ☐ 1986 (7)
- ☐ 1987 (8)
- ☐ 1988 (9)
- ☐ 1989 (10)
- ☐ 1990 (11)
- ☐ 1991 (12)
- ☐ 1992 (13)
- ☐ 1993 (14)
- ☐ 1994 (15)
- ☐ 1995 (16)
- ☐ 1996 (17)
- ☐ 1997 (18)

Q19 Gender?

- ☐ Male (1)
- ☐ Female (2)

Q20 What is your level of education?

- ☐ In high-school (1)
- ☐ High-school graduate (2)
- ☐ In college (3)
- ☐ College graduate (4)
- ☐ In professional school (5)
- ☐ Graduated professional school (6)

Q21 What is your current household income?

- ☐ Under \$25,000 (1)
- ☐ \$25,000-\$49,999 (2)
- ☐ \$50,000-\$74,999 (3)
- ☐ \$75,000-\$99,999 (4)
- ☐ \$100,000-\$150,000 (5)
- ☐ Over \$150,000 (6)

Q22 Which geographic area do you live in?

- ☐ Rural (1)
- ☐ Urban (2)
- ☐ Suburban (3)
- ☐ Other (4)

Q23 Do you plan on moving to any of the following geographic areas in the next 5 years?

- ☐ Rural (1)
- ☐ Urban (2)
- ☐ Suburban (3)
- ☐ Other (4)
- ☐ I do not plan on moving after I turn 36 (5)

Q24 What is the likelihood of you moving to a big city that has very good public transportation in the next 5 years?

- ☐ Very Likely (1)
- ☐ Likely (2)
- ☐ Undecided (3)
- ☐ Unlikely (4)
- ☐ Very Unlikely (5)

Q25 If you moved to a large city with good public transportation, would you still want to own a car?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Unsure (3)